

MINUTES OF EVIDENCE  
TAKEN BEFORE THE

SELECT COMMITTEE ON SCIENCE  
AND TECHNOLOGY

(SUB-COMMITTEE II)

Thursday 17 January 1991

EUROPEAN COMMISSION

*Professor P M Fasella*

*Professor J A McCleverty*

*Ordered to be printed pursuant to the Order of The House of Lords of  
15 November 1990*

INFORMATION CENTRE

Wellcome Centre for Medical Science

LONDON: HMSO

£4.10 net



THURSDAY 17 JANUARY 1991

Present:

Adrian, L	Porter of Luddenham, L
Dainton, L (Chairman)	Sherfield, L
Kirkwood, L	Taylor of Blackburn, L
Nelson of Stafford, L	

**Examination of witness**

PROFESSOR P M FASELLA, Director General, Directorate-General XII, Commission of the European Communities, called in and examined.

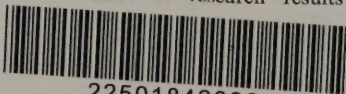
*Chairman*

851. Thank you very much indeed, professor Fasella, for coming to see us today and particularly at this critical time. We are very appreciative of your efforts and also very grateful for that most helpful paper which you produced last August which has been very useful to us. Now, you have, I think, had a list of our questions beforehand so that you know something of the ground we wish to traverse, but it is, of course, open to any member of this Committee to put any other questions which he or she should deem to be relevant. I wonder, with that background, whether there is anything you would like to say by way of a general statement before we begin?

A. Noble Chairman and noble Lords, I am very grateful and honoured to be here. On the previous occasions I have always been very stimulated, so I appreciate this very much. On the basis of the items which your Clerk very kindly communicated to me, there may be three general points which can be referred to out of the 11 questions about which you are greatly concerned, and I should say so are we. One is the whole problem of evaluation and how independent evaluation can be and is actually used to improve the system. Another is the problem of which type of contract is most suited for the universities to make the best of their participation in our Community programmes. The first question, which was of a more general nature, is what is the impact which the United Kingdom has on Community programmes, especially at the time when they are conceived? With your permission, I would make three short general remarks on these points. Concerning your first point—what is the impact of the United Kingdom?—I would distinguish the impact which is institutional from that of a more informal nature. There are a number of committees which are established by the Council and Parliament where all Member States have the right and duty to participate and here the United Kingdom participates like other Member States and the weight of its impact depends upon how convincing its arguments are. Obviously this input is inevitably more of a political nature. But then—and I mention this because it is less known and it is another form of impact where for a number of reasons the United Kingdom has perhaps had a larger influence than, I would say, have other countries—there is the direct impact which either individual scientists or researchers in industry or more of research results or non-governmental

institutions—the Royal Society or the learned societies—have on our programmes. Without boring you with the details (but they are all available, including the names and addresses of these various individuals and bodies) I shall just say that they represent to the Commission a most valuable way of having direct opinions and advice from the persons who actually carry out research or actually use the research results. We do this sometimes through personal contacts, sometimes by asking a body or institution to carry out a specific study. Therefore, there is no distribution by nationality, we go to find the experience where we think it is most valuable, and we check with others generally before giving an important task of advice to a specific person or institution. We would ask the Max Planck Institute or a body like the European Science Foundation about particular persons the Royal Society might suggest. You understand that this is not because of mistrust but to have persons in whom others have confidence. For historical reasons it just happens that the United Kingdom generally participates more. This comes naturally, it is not planned. We look around and that is what happens. I mention this because it is not published but if your Lordships or your Clerk are interested, we would provide data that shows this. This is the first general point.

The second general point is evaluation. Evaluation is a rather new science. We may not want to call it that. It is a tool we have been applying progressively and more and more vigorously over the last decade. There is still a lot to be done and we now speak of independent evaluation carried out by persons who are knowledgeable or potential users of the results of research but have not been directly involved in the programmes. Evaluation is now part of the system and the Member States and Parliament do not approve a new programme unless the programme—and I speak of research programmes—specifies the terms against which the evaluation will be carried out. There will be no renewal of the programme unless this result is provided. We have evaluation of the Framework Programme which, as you know, is the overall planning instrument, and then of specific programmes. The Framework Programme is a rolling one. It is of five years duration. Every third year, it is reviewed by an independent panel and a proposal is made for a new overlapping framework programme, so that the first two years of the next programme correspond to the last two of the previous one. This has been decided in order to combine flexibility with some continuity.



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[Continued]

[Chairman *Contd*]

Activity on each programme has a peak, I would say, around the third year, then goes down a little, at which time the next one is coming up. So it is difficult, unless you understand this system, to answer the question, is it a midterm or is it an end of term evaluation? Because when the third year comes you will have completed the previous programme while you are halfway through the current one. It may sound complicated but it proves efficient; since five years is quite a long period, it is good to know even for the running programme if you have to change or stop something.

852. So it is possible to change years 4 and 5 of the first tranche at that point at the end of three years?

A. Yes. I have noticed that one of the remarks sometimes made is that evaluations are done rather rapidly, but they have to be done quickly or the data become obsolete. The same principle applies to each specific programme which is looked at in depth. So you have an evaluation of the overall system.

853. As I understand it, there are eight years involved here, five and five but with two years overlapping with the end of one, and so on. When you are in fact evaluating at the end of the third year of the first programme, it influences what is going to be done in years 4 and 5 of that and may also be an element in shaping the next few years of the second programme?

A. Correct. That is even more important. Then it is important to know that each programme is also evaluated separately so that you have both an overall view and —

854. At the end of five years?

A. Yes—I am being very Italian in using my hands. Each programme is also evaluated by itself. The other point you raise is, how are the suggestions from evaluation used? They have a great impact. If you take the results of the evaluation reports for the overall Framework Programme, they have come out with suggestions that go way beyond the Commission's services and actually recommend a change in the Treaty. The present system, as specified in Title VI of the Treaty of Rome, which concerns research, was introduced with the Single Act and it foresees that the Framework Programme is first proposed and discussed and this could go back and forth between Parliament and Council twice. It takes us some time, even when all goes well. Then you start proposing the specific programmes which also go back and forth between Parliament and the Council four times—well, twice each way. This can make the whole procedure incredibly long. I myself reached public administration rather late in life. I have had experience with industrial research and I do not know any working industrial system that requires three years to get things approved in research. I think the Commission is fully persuaded of the need for change and even at the last meeting of the Summit of the European Community Member

States this was listed among the items that should be looked into in case a new Treaty is prepared (I understand this is not so important as other matters, but certainly for research it is and I dare to bring it to the attention of your Lordships because of its political implications).<sup>1</sup>

Evaluation also gives rise to many suggestions which are operational. They are very useful. Evaluation, to be effective, must be hard on those who are evaluated; provided one is not killed or badly maimed, one behaves better if you know you are to be evaluated. Steps are taken continuously to try and improve the system and to make better choices. There are many examples. First we had materials and industrial technologies as two separate programmes and, as the evaluation indicated, this was not satisfactory. We fought a bit of a battle with persons that like a large number of committees, as they wanted to keep the programmes separate, but eventually we persuaded everybody to have a single programme.

In many programmes, scientific items have been dropped, because evaluation showed they were obsolete or better done elsewhere. Evaluation also provides many suggestions for improving our administration. We generally have to show to Member States and Parliament, when we propose a new programme, how we have complied with the recommendations of the evaluation panels. It will take too long to tell you all this now, but this material is available.

There is a third point, which that of the contracts for universities. As of now the universities have a choice. I oversimplify things a little bit and I apologise for that. The first choice is that they have reimbursement based on the total cost of the project. When this has been established, and we know exactly how much a project costs, the Commission reimburses a part of it. We generally reimburse 50 per cent. On very special occasions we can decide to give more or less. We give more than 50 per cent when the results are really needed for some Community problems. This happens sometimes in what we call pre-normative research, where the Commission wants to buy the knowledge because it needs it as a basis for preparing new norms. We may then pay more than 50 per cent. On the other hand we may pay less, though remaining in what we call the pre-competitive phase, if the research gets closer to the market; then industry should pay more.

<sup>1</sup> *Note by the witness:* The principal difficulty with the current procedures for approving the Framework Programme and the specific programmes which implement the Framework Programme stems from the different levels of involvement of the European Parliament required for the legislative decisions. For the adoption of the Framework Programme, the Parliament is consulted whereas for the adoption of the specific programmes, the "co-operation procedure" is used. This difference in the procedures used can lead to delays in approving the specific programmes. The Commission would like to see this anomaly rectified in forthcoming discussions on Treaty reform.



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[Continued

*Lord Taylor of Blackburn*

855. Could you give us an example of what those two would be?

A. Those for which we pay less than 50 per cent?

856. When you pay more?

A. Take a programme in biology applied to agriculture. If there is a very fundamental research phase we may pay more than 50 per cent. Then there may be an applied research phase where we pay 50 per cent. If then you have good results and some agro-industrial concern wishes to try out, for instance, genetically modified plants on the field, that becomes more expensive. It is closer to the market. If it is a five year programme we might still pay 50 per cent for the first year, and then industry and the private sector should take over. This is a hypothetical case and it is different in various fields. For most projects we pay 50 per cent. We think it is essentially a good system, especially when we work with industry. It is, as a rule of thumb, the most effective way of making certain that the industry which carried out the research will be motivated in exploiting it, because they put in their own money. As an example of advice from an evaluation panel, which we implemented in the next programme, the evaluation panel said in this connection that we had to insist that industrial research contracts with us be signed by somebody high in the companies, perhaps the Chairman, but not only by the head of research, because then the company become responsible for the money. This works quite well with industry, but it does create problems—and this is one of the points at issue—with universities. Many universities do not have a detailed accounting system that makes it easy to find out which of their expenses are connected with research and which ones, for instance, with teaching. As a rule of thumb, it has been found (by the Universities Funding Council) that the average is 65 per cent teaching and 35 per cent research. There are differences between the various institutions, so you cannot apply a general rule; this is one of the difficulties. We have conflicting reports on this. For instance, the German Deutsche Rektoren Konferenz and the Dutch found for them it was more advantageous, because they had an appropriate analytical system, to have 50 per cent of total costs, which they have to account for, rather than what we call 100 per cent of the marginal costs. The Germans prefer the first system. It appear to give some 5-10 per cent more to their universities. Recently there was a report by Sir John Kingman (and I have this data here) which indicates that for the UK universities it is slightly better to have 100 per cent of the additional costs. Which one is best, I do not know. It is probably different for the various institutions.

*Chairman*

857. It depends on the extent to which there is a large equipment element, does it not?

A. Absolutely. Then we come to the problem of equipment and overheads. Am I going into too many details?

858. No. We are particularly interested in the overheads, because at the present time, as you possibly know, the universities in this country will lose a slice of money which will be moved to the research council side which will make it less easy for them to match the costs that you expect when you only fund them to 50 per cent. You are aware of that?

A. Yes. Thank you, you have explained it to me very clearly. The other alternative is having 100 per cent of what we call the marginal costs plus overheads. On the average we have a ceiling for overheads on the marginal costs of 20 per cent. This may be acceptable for the average of Europe. It may not be suitable for the UK or some of its universities. If the situation changes in the UK the figure we take as a reference might change. In many cases we have noted, especially in this country, that there has been a slight misunderstanding, because some universities thought that we could accept 20 per cent overheads only on staff costs, which is not true. We accept 20 per cent also on other additional costs; costs which a university department may have incurred just to do the research for which they receive a contract. As your Lordship said, in the case of equipment it varies very much from research to research. In some cases universities want to be able to pay people, and in other cases they want to be able to pay for equipment and in other cases they want computer time. It varies and we must be careful not to create too many straightjackets. The debate is a little complicated. There have been two specific complaints by the University of Belfast and the University of Bristol. As far as we are concerned, we have followed this issue thoroughly and as, I see it, I think the ball is now in the universities' court. It must have been in September 1989, so it is now more than one year ago. Your CVCP and CDP (I always get my acronyms wrong) wrote a letter to all the universities suggesting that specific proposals be made for re-examining the problem, and we are ready to do so, but we have not received these proposals.

859. I think, if I could just interrupt, the problem we have here, and we are well aware of Bristol and Queens University of Belfast because I think I am right in saying we have received depositions from them, copies of which you have had, but I think our problem is to understand the philosophical basis for having 50 per cent anyhow as a starting point. How was that arrived at?

A. Your Lordship speaks of 50 per cent of the total cost, the first solution.

860. That is right.

A. It was both empirical and adjusted by events, 50 per cent is half and half, with adaptations, as I described, for special cases, either very fundamental



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[Chairman Contd]

or necessary to the Commission itself, or closer to exploitation especially with industries. Industries accept it and we have not had any complaints.

If we had tried to increase the percentage we pay, then the rate of exploitation of the results by the companies would probably have fallen.

*Lord Porter of Luddenham*

861. Professor Fasella, as to the difficulties you are talking about in the universities, we seem to be talking very much about the United Kingdom. Is there something about the university system in the United Kingdom which is different or do the other European countries have the same problem with overheads?

A. We have some problems in all countries, but we have more with the United Kingdom of a financial nature.

862. Why do you think that is?

A. I cannot speak as a Community official because as a Community civil servant it is none of my business, but if you accept it I can give you my personal view—and I have worked extensively with British colleagues in my time. Of course, I continue to follow the situation and my impression is that the United Kingdom university system is in a unique position because the amount of financial resources which are being made available are, relative to some other countries, small when compared with the scientific capacity of UK universities and that is where the difficulty comes. You see, I will give you an example. Several years ago, we were considering in one of these consultative bodies where people sit as individuals—very distinguished people such as Sir Peter Swinnerton Dyer, Sir David Phillips, Sir Geoffrey Allen, very good people—with their colleagues from other countries, and we were trying to find out what would be a proper salary to promote mobility of senior people if a professor were to take a sabbatical and we offered him a salary so that he could go and spend it where he wanted in Europe. When we were discussing what would be a fair salary I was very surprised that some German colleagues and some British colleagues came out with almost exactly the same figure for a yearly salary—but each was being more European than the other and the Germans thought the figure was in pounds and the British thought it was in deutschmarks. This explains the plight.

*Chairman*

863. That is factor three really. I wonder if we could go back just a little bit on the evaluation question, in particular how do you choose your evaluators? The quality of the evaluation is, of course, a direct function of the quality of those people. Do you choose them on an international basis? Do you have, as it were, a body of knowledge which enables you to pick them? When they do their work, do they set their evaluation against preset criteria for a particular contract?

A. Yes. But starting with the last question, because we selected references on the basis of the terms of reference of the evaluation. When a programme is adopted, following strong pressure mostly from the United Kingdom Government—and I think it was a very good idea—the programme has one paragraph that spells out the objectives which become the terms of reference for the evaluation. We could take some of the programmes so that you could see how the objectives that have are defined. So the first concern of the evaluation panel is to verify, to go through the shopping list of objectives established by the Council and Parliament when the programme was adopted and see how many of those objectives were actually reached. This is specific for each programme. Then they all have to express themselves on management—what is correct, what is efficient and so on. Then they have to express themselves on the relevance of the results. So that we ask them —

864. Relevance to what?

A. Relevance of results to society, industry, depending upon what the programme is. If it is an industrial programme and it turns out that, even though industry put in 50 percent, the industrial members of the evaluation panel say "We do not see how these results can ever be used, it was a wrong choice", or "It was badly carried out", this becomes part of the report. Having said this about procedures, I'll turn to the persons chosen for the evaluations. The evaluation is always done by a panel which should comprise people with different qualities and competencies. We always need some persons who are experts in the field from the scientific or technical point of view. We need and generally have one person who is an expert in management, and we generally have two or three persons who are representatives of the users of the research results. If we carried out research on environment which gave information on which a regulation by the Environmental Department of the Community could be prepared, we would ask them to nominate somebody—who may not be interested just in the chemistry involved but would see whether the results are useful for the preparation of regulations. So these become the criteria on which we choose the persons. At first it was rather difficult and now, having played the game for about ten years, we have a database of about 3,000 experts from which we can draw. On a specific programme we normally first ask for nominations, not appointments, by the national statutory committees of Member State representatives. It cannot be a member of the committee but we get suggestions from them. So this is the contribution which each Member State may bring. Then when a user is clearly identified we ask users to nominate experts. If one of the objectives of the programme is, say, to provide scientific base data on which a new regulation on exhaust from industry must be based, we would ask people from ministries of environment but not as officials, as experts, or we would ask the advice of the directorate general which is responsible for the



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[Chairman *Contd*]

norms to nominate persons. Then we have our own list of experts, including the specific scientific consultants I was mentioning before. They act as individual independent scientists, though they must be respected by government bodies. In this we have had great help, because we started from scratch, from bodies like the Royal Society, Max Planck Institute and the European Science Foundation, which give us lists of referees which we then double-check. We sometimes make mistakes but, well —

865. I can understand this working very well, particularly as to evaluation against preset criteria where the research is more directed towards the applied side or strategic side, because you have objectives stated beforehand, but this does present difficulties, does it not, in the more basic work in that by its nature you do not know the outcome when you start because otherwise you would not undertake it? So how do you evaluate that?

A. Right. This is especially true of the programme which used to be called Stimulation and then became SCIENCE. There are two sets of criteria established by the Council decision against which each programme is assessed.

Indeed, such an assessment has been made last year and it is available to your Lordships if you want it. The two sets of criteria are quite different. I would almost say you risk falling into a problem of indeterminacy, because there are things you can measure but perhaps they are not too significant, and there are things which are more significant but measured quantitatively. Those you can measure quantitatively are: how many twinings and joint operations have developed; how many exchanges have occurred; how many papers have been published; what is the citation index on the papers that have been published? These you can do over a five-year span. All these quantitative criteria are useful, but not that much. Let me give you an example: I saw a report in which the criteria of number of patents and publications had been applied to the advanced ceramics industry of Japan, and it came out that Japan was much less efficient than Italy, and then I had some doubts! I think we should use such indicators, but it risks becoming a typical case of looking for your key under the lamp because that is the only place where you can see things. We generally ask also for qualitative assessments. This is generally the task of scientists who report on what significant results have come out of the programme. There I think the SCIENCE programme is probably the most interesting, because, as your Lordship said, there is no specific scientific goal; its objective is just to select good people who seemed to have good ideas in the field of hard sciences and allow them to work together after project selection by good referees. It could be anything: it could be higher mathematics; it could be materials. There is no straightjacket. That is why many interesting ideas and results come out. For instance, there was a group that developed very thin wafers of about one or two molecules thick of

polymers which are spread out on the surface and have two dimensional systems of conjugated double bonds. If the wafers are poisoned by introducing transition metals, especially the higher atomic number metals, they have materials that have most unusual electro-magnetic properties. This was surprising. Similarly there was a group of people that came together and, first, they only asked for a very small grant, and they went to Brussels and they had terrible rows; there were mathematicians interested in the processing of information, there were informatics people, there were solid state physicists and there were neuro-biologists. Eventually they put together a programme which they called "Brain" which produced extremely interesting results. They concentrated on an important feature of information processing by the brain and considered sessions as devices that are adaptive and connective and with a memory, though limited. If they had a full memory and never forgot the system would lose plasticity. This came out from the observation of some simplified brain systems. Then the mathematicians worked on the data which the neurologists had and worked out algorithms to describe the system. Then solid state physicists tried to develop devices that were both adaptive, because when they were adaptive they could connect, and that had a memory, namely the connection remained for some time but not forever. This was extremely exciting and nobody had foreseen it.

866. You have made your point, I think, which is that you have enough flexibility in your way of assessment that if something unexpected comes up and if it is good that is a reason for continuing and not discontinuing, despite what you may have said when the thing began?

A. Yes, exactly.

867. I wonder if you could go on a little bit further on the financial side, particularly as it affects the United Kingdom. You did say beforehand, I think, and you also said in your evidence which I have in front of me that the United Kingdom does have a little problem in this so-called attribution and additionality concept. You are aware of that, are you? Perhaps I should explain it, just to be clear on it. The notion that the Treasury has here is that there is an envelope of money to be spent from UK sources, some of which goes to the Community and the remainder, shall we say, to science in this country through various agencies, but if that which is used by the Community comes back to the scientific community here then the Treasury has, shall we say, a natural inclination to tend to deduct that money from the science block that exists already. That is the problem. Can you tell us whether in your experience, and I think it is very important, that either has been or is likely to be a deterrent to British scientists in coming forward for money? It seems to be such an obvious disincentive.

A. In spite of the fact that I do believe it is a disincentive, we do have very many proposals from Britain; the quality is increasing, especially in the



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[Continued

[Chairman *Contd*]

most interesting programmes. Because project proposals are selected on scientific merit rather than on automatic "just return", this leads, for some programmes, to a high level of acceptance of projects which happen to involve UK scientists. If you take SCIENCE programme that was mentioned, in some years the British receive around 28 per cent of the funding. In other programmes they have less. Figures for average participation of different countries depend upon what period and which programme you consider, and if you include or not the Joint Research Centre, or if you include or not JET. There is at least one person in this room who knows quite a bit more about JET than I do. The returns for the UK on JET are not negligible. I speak in purely financial terms. Since scientific and technological merit is a key criterion in project selection in each of the programmes, there may be countries that participate more than others because they submit more projects of higher quality. This may be hard to accept by those countries which participate less, and may lead to pressure for an automatic "just return" system. The interests of each and every Member State must rather be sought in the choice of the programmes, in the equilibrium between the programmes and through structural help for less favoured regions. Moreover, all EC supported projects involved more than one country, and they often lead to co-operation between regions of different S&T level. Returning to the UK situation, I think that if attribution is applied as your Lordship described, it would be a disincentive. In spite of this, the British participate intensively with good projects and in the SCIENCE programme and some others get more than "just return". It means their projects must on average be better than those of other countries. This is on the basis of a scientific and technical refereeing report which is made by experts of all countries. It means that the Germans, French and Dutch agree that those proposals are better than others. The net result is altogether positive. It is not true in all programmes and, as I said, on average you are slightly above your "just return". In some you are way above which means that in others you are quite appreciably below and this latter situation might spread, if indeed the attribution disincentive works. I myself, as I understand the system, have the impression that it penalises the UK researcher twice—first at the time when the Framework Programme is approved, then when the projects are selected. The Framework Programme which sets down the figures is approved unanimously, so each country may block its adoption. The national treasuries get involved and before the UK minister may accept the programme he must have (as you explained) the agreement of the Treasury. I have been told that the Treasury then says, "Okay, the Community research programme on environment requires a certain amount of money. 18 per cent of that corresponds to the UK contribution, funds for the national research programme on environment will be cut by that amount." I suspect that this occurs not only in Britain but also in Spain and other countries. I am

certain. It is only from the UK that the problem has been brought to my attention. Then, as I understand the system, there is the risk that British colleagues may be taxed a second time when the projects have been accepted—they say it may occur and this would become a deterrent. Take the environment again. The national support for environmental research has been cut by 18.1 per cent which is the British participation in the Community programme, so they have a little less. They compete. Suppose they sent in at European level very good proposals and they got 20 per cent. Then they fear that the British authorities would say "ah, you have 20 per cent for the Community budget so you get less from us". At this point the United Kingdom researcher would lose twice. I do not know if this actually occurs, but if it does—this is an internal United Kingdom affair—it seems to me it is bad for Britain.

868. And can frustrate what you want to do if you have a policy.

A. Yes. If a programme has been accepted, it means the United Kingdom Government has agreed to it, since the Framework Programme requires unanimity. If in fair competition United Kingdom researchers get more than what would be the bureaucratic share, why should they be penalised? They should be encouraged. So if this indeed happens, again I am surprised because it does not seem reasonable. Perhaps I should not have said that and I hope I misunderstood the system.

869. You have been perfectly well understood. We are most grateful to you for that explicit statement. Could I just ask one other question about this funding, particularly as it involves now so many countries within the Community and you have a positive philosophical duty to perform as well. You have the criterion or social cohesiveness, for example, if I understand it correctly. There must be great differences between the ability of countries to perform. Do you find yourself in the position of having to say, "Well, we would support it in country X, it is not strong, but for the purposes of bringing it up we will put support there"? Has that caused a deleterious effect on, for example, good work which could be done by a strong country because it is good?

A. There are problems, but so far we have been able to cope with it. Problems exist not only among countries but also within countries. For instance, my compatriots have a less than average participation in some programmes and this participation is often form a very small part of the country. In some technological programmes, it is predominantly from Lombardia and part of Piedmonte. There they are quite competitive, in the south they are less so, or less interested. We are committed to the criterion of excellence; so far we have succeeded. But in other activities of the Community the problem of cohesion in relation to research is taken care of. So our principle is that when you go through approving a research project you must base yourself on excellence. If you do not it is, first of all, bad for the less privileged regions from which you accept lower



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[Continued]

[Chairman *Contd*]

standards. It is better to have fewer excellent projects from, say, Calabria or Crete than to have many mediocre ones. We must remember that participants pay 50 per cent, so if we encourage them to put limited money and limited human resources into second-rate projects, we are doing a disservice to them. We have often maintained that they can use the Community refereeing system, which I think is quite honest and good, as a free alternative to going, say, to Batelle Laboratories. If they have a project and they want to know if it is worth putting the money in and they send it to us, we can tell them "The project is not so good, don't put any money in because it is obsolete", or "Somebody else has done it" or "It won't work" or "It's not commensurate with your strength". If you go to Batelle Laboratories or Arthur Andersen or any other consultants, you have to pay. So we give that advice for free. It is not always accepted that easily, but it is something we try and say. But in order to be excellent, you need people, you need trained people and a minimum of infrastructure. So for the regions which are underprivileged we do have programmes which are not part of research. They are run mostly by DG XVI, regional programmes for infrastructure, and we interact with them very closely. Now, there is a fund called STRIDE for research, which includes several million ecu for Northern Ireland. We singled out STRIDE in the broader framework of regional policy funds also because it is sometimes very difficult to persuade national or regional authorities to reserve some money for research. It is long term, it is not so flashy, and sometimes it is more attractive to use the money to create one more autobahn than to create a laboratory the value of which corresponds to a few kilometres of autobahn. So it is good to put some money away for research infrastructure in less privileged regions. This is one thing. Then, of course, we promote training. There are special programmes like ERASMUS for students and COMMETT in relation with industry. If less privileged regions can train their people and are given infrastructures, why should they not be excellent? In any case, the data on the relative participation of Member States in EC programmes are available, both within the Commission and in the Member States.

Chairman] I am afraid I have monopolised the conversation from this side. Could I turn to my colleagues and ask if they have any quick questions they want to raise?

*Lord Sheffield*

870. Professor Fasella, when you came to talk to Sub-Committee B about a year ago—or just over—we had some discussion about the problems of definition of "pre-competitive" and "research". We talked about "strategic" and "near-market", you talked about "pre-competitive" and "post-competitive". Then you said the phraseology you preferred was "pre-normative", I remember. I wondered

whether you had in this year that has gone by had any experience of difficulty arising from these rather different forms of expression.

A. I think we have had difficulty with the substance of the programmes and the difficulty with the words just reflects the real difficulty. Your Lordship mentioned "pre-competitive" and "pre-normative". Pre-normative goes well, keeping our fingers crossed. Everybody agrees that in a scientific and technical world that evolves very rapidly it is important that when norms or standards are needed they be based on the best that science and technology can offer. I think in the past there have been political problems which have been in all the papers, like the difficulties we have had with the Americans on the import of animals treated with bovine somatotropin. The solution of these problems could be helped by a broader, common scientific approach. So, I think everybody agrees with pre-normative research and, indeed, we are encouraged to do more. I think that one important area which we need to pay attention to in this field is to make the best use of molecular biology, cell biology, *in vitro* testing, NMR and so on. That is very well developed in this country. One should progressively upgrade the scientific basis on which registration of new drugs is based. As of now we do not always use the most relevant evidence. Developing new drugs is very expensive—it costs the best part of \$150-200 million to take a new molecule from your mind to the market and the best part of 10 to 12 years.

Much of it is for providing the evidence that these molecules are safe, of good quality and are effective. Many of the protocols on which this registration is based are now obsolete. We should make the most of *invitro* testing, *invivo* diagnostics and better animal models so as to make preregistration work more significant and less costly, starting with drugs aimed at the expensive diseases. We have made a study in which we classify health expenditure on a nosographic basis. Such spending in the EC is now more than 150 billion ecu per year, which is a lot of money, and some of it is badly spent. I think this is a typical area where a great effort of pre-normative research should be made. This is the positive aspect. Pre-normative research is accepted. With pre-competitive we have problems. First of all, within the Commission itself because we have DGIV, which is responsible for the competition rules, that looks with great worry at any support for research which approaches the market. On the other hand, we have other services in the Commission which say—and you all read I think the article by Mr Bangemann in the *Frankfurter Allgemeine Zeitung*, where he has set out his five principles of industrial policy. So research becomes part of that discussion, which is complicated by events going on in the Uruguay Round in GATT. All this requires a re-examination very much in depth. As of today I am here and my colleagues are at a meeting with DG III (industry), DG IV (competition), DG I (negotiations in the GATT frame) and DG XIII trying to develop an approach which takes as a reference the five



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[Continued]

[Lord Sherfield *Contd*]

Bangemann points. I think the difficulties are now greater than they were when I was here last. It is not only a question of words, but there are real issues at stake. How much public funds should go into companies and under what conditions.

Lord Porter of Luddenham

871. I think Professor Fasella has answered most of the questions very clearly as far as I am concerned. I have perhaps just one: you explained to us very well how the evaluation is carried out of a project or a programme once it has started, I was less clear about how the decisions are made at the very beginning on what areas should be supported. Are they mainly based on applications? Are those applications guided by the areas which you seek applications for? Put another way, as we very often do in this country, are they bottom up or top down?

A. I think they are both, and they should include both. This is what we try and do. On the one hand, even within the Commission services, there is a school of thought which is perhaps Cartesian in which you describe a system and say that is what we need and select the area; but on the other hand, there are other persons, and that is one of the advantages in the Community, in which various components of the European culture come and say, "Okay, you have this strategic approach, but let's get down to facts, and let's talk to industry, let's go to researchers and see what they have in their labs and what they have in their minds and what they think they would like to do at Community level". We then combine the two approaches, and sometimes we have done it literally on paper, getting suggestions from persons who have followed one approach and the other and then we make adjustments. One needs some overall planning but one should not ignore the reality of the problems and opportunities seen by people in the field. It is not always easy, and I am not certain we always strike the right balance. That is why there is the ex-post evaluation that comes in to correct things when we make mistakes.

872. You say there is always a slot somewhere for a person or a group who have some completely new proposal which does not fit into an obvious subject group and so forth; if they applied for support there is always a slot?

A. Yes, within the limits of available funds this is what the SCIENCE programme was about and now it is carried on in the so-called Human Capital programme, but it is the same approach. As my Lord Chairman said, the really new ideas we cannot predict. How could we write down the objectives of a new scientific approach if the idea is really new? We must leave that open, but there is some pressure against it, especially in some national administrations; the idea that you have a programme in which you do not spell out how many Nobel Prizes (and in which areas) you are going to win.

Chairman

873. Your function really is to be reactive and proactive?

A. Yes.

Lord Adrian

874. I have no questions, but I would like to express the hope that we might be able to have examples of the terms of reference of particular projects under the various heads, from the SCIENCE programme right through to the industrial programme because it would be extremely helpful for us to see that.

A. Yes, we can send them for all programmes and you can look at those which interest you.

875. I was hoping that you might do the same?

A. Yes, I can do that.

Chairman

876. Perhaps you can describe the continuum of the spectrum?

A. The Community always circulates too much paper.

Lord Kirkwood

877. Perhaps a rather more mundane question for Professor Fasella but one, nevertheless, which I think concerns a lot of scientists who are making submissions to some of the framework programmes. There is a large bureaucratic procedure that has to be gone through, and that is certainly one thing that puts off a lot of people making applications. There is a lot of expensive travelling and there is a lot of time which is involved and even a successful programme gets no reimbursement for all that cost. Would it not be an encouragement to reimburse the costs that are incurred whether the submissions are accepted or not?

A. Your Lordship, you raise at least three crucial points. One is the problem of reimbursement. I think it is indeed a very interesting proposal. I think it must also have been at least indirectly suggested in either the Belfast or the Bristol report. We are experimenting with it in the BRITE EURAM programme which, being also addressed to small and medium enterprises, is particularly sensitive to these problems. What we have tried to do—and there is an interesting evaluation done by IRDAC (which is the committee made up of knowledgeable individuals that advises us on industrial research) is what we call the feasibility awards. Organisations which have a good idea where they think it would be expensive to make a full proposal, can apply under the feasibility awards. We cannot give them to just anybody because you have the most crazy ideas with some of the proposals we get. There would be a screening and those which are selected receive full reimbursement for the feasibility study. This is one system we have been trying out and which is now being evaluated. If your Lordships are interested I can



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[Continued]

[Lord Kirkwood *Contd*]

have the paper on that sent to you. Then there might be the idea, and this is a new idea, preparing accepted proposals.

This is, I think, certainly worth exploring; maybe not the whole costs—I do not know—but it is certainly worth exploring.

*Chairman*

878. Well, Professor Fasella, we do thank you very warmly for having come and given us such a very interesting insight into so many problems of

concern to us. We must say how very grateful we are to you. I hope it has been worthwhile from your point of view.

A. My Lord Chairman and my Lords, I feel very privileged at being among you and I always come back with more ideas which is perhaps an even greater privilege.

879. I think I should say "safe journey home" today, should I not?

A. Thank you.



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[Continued

**Examination of witness**

PROFESSOR J A MCCLEVERTY, University of Bristol, called in and examined.

*Chairman*

880. Professor McCleverty, I think you can see you are among friends around the table.

A. Certainly three of them I know directly.

881. You have a list of the questions and you have the advantage of listening to the exchanges we have had with Professor Fasella. Is there anything you would like to say by way of general introduction or would you like to speak directly to the questions you have had, or are there any other observations you care to make?

A. Well, Lord Dainton, first of all I would say how much I appreciate the chance to come here and to subject myself to questions and to think about the issues you have raised. I do not intend to make a lengthy statement. I would prefer, in fact, to respond to questions. But before I do that I perhaps ought to give a little bit by way of explanation of what I, in a sense, think I am doing here. You should be aware, my Lord, that I am of course a professional chemist and regard myself as being primarily that, and for that reason I will speak to you about what I see as happening in chemistry, and how it relates to various questions you may raise. However, I also, for my sins, am Chairman of the Chemistry Committee of SERC and that gives me a certain privileged view of what is happening in chemistry in the United Kingdom and how we fund it, or more correctly how we are unable to fund it, at this moment. I am also, by virtue of that position, a member of the Science Board of SERC and so have access to what is going on in other sciences. For those of you who are perhaps not so familiar with that particular organisation, the Science Board is responsible for the funding of what we properly call pure science in the United Kingdom, at university level certainly. By that I mean mathematics, physics (which does not include particle physics and astronomy), chemistry, of course, and the biological sciences.

882. And earth sciences?

A. No, the earth sciences only in part. Some are dealt with by NERC, we do not often see them. Therefore, I have a certain view of that. It is with that little bit of background, coupled to the fact that I have served three universities, one of them as head of department, that I can say that I have a little experience of what is now called management; so I hope I can answer some of the questions you may put at least with a little experience, hopefully with a little wisdom.

883. Could one ask right at the very outset, having heard the discussion which has gone before and knowing the general problems which face British science in SERC, how you see the ordinary, as it were, coalface scientist or bench scientist facing up to the problems of the future, given the kind of inevitable bureaucracy involved in going to Europe

and, in addition to doing this, also having the relative shortage—if I understood you correctly—of funds available to SERC?

A. That is a very wide-ranging composite of questions. I think against the background of the answer I will give, that you should be aware of the very acute financial situation that science is in right now as a result of difficulties at SERC in terms of the lack of money. So any collaboration that we engage in with Europe, with North America, with anywhere in the world has to be viewed against the ability of British scientists to mount a collaborative programme with their own resources. Much of what we do at a personal level in collaborative science is done on the basis of a so-called well-found laboratory. In other words, if I want to collaborate with somebody in Sweden, I will find somebody, not necessarily coming from a sponsored programme involving the EEC or indeed any body, perhaps by a chance contact whom I convince or through reading the literature knowing somebody. If I want to establish that contact, I will approach that person, we will agree what to do, then look for a funding organisation, but we do that against a background of belief that in our own laboratories we can actually do the basic fundamental science. What we are looking for, therefore, in forming a joint programme is the added value we would get in terms of intellectual stimulus and belief that with two people working together on a problem the mutual increase will produce results which are greater than that combination—in other words, two plus two can equal five, if you like, in terms of the benefit we should get from that. We are greatly embarrassed in this country because of the difficulties we have in chronic under-funding of science. We just cannot always do what we are asked. I give specific examples without naming names or institutions. I know of an individual who has a programme in environmental science which is funded through the EC and he has collaborators in Norway and Germany. The basis of this collaboration is that this person will get money through the Atmospheric Chemistry Initiative recently established by the Chemistry Committee in the Science Board of SERC. The project which this person has put to the Chemistry Committee through the Science Board has been approved but it cannot be funded because there is no money, so this man is in a gravely embarrassing situation of not knowing how he can move forward with his European colleagues to develop this further. He does not have essentially the key which opens his particular door and in that sense I think we are considerably disadvantaged. Now, I would say that the current financial situation is perhaps of a limited nature. We do not know, but it is one which you might call a recurring phenomenon and I know at least one of you has suffered in that capacity in SERC and knows exactly what I am talking about. Our worry about the funding scenario in terms of pure science through the Science Board is the capricious nature of that funding—it can be turned on and off. It is currently turned off because



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[Continued

[Chairman *Contd*]

we face a very difficult situation with respect to currency fluctuations, with respect to inflation, with respect to salary increases over which we have really no control.

The situation has been brought, I think, to a very acute point this year because, in addition to the fact that we have all these accumulating factors over several years, of failure to recognise that innovation in chemistry or physics or biology is different from innovation in terms of the price of a loaf of bread. That failure to recognise that is cumulative. This year, of course, we had a much lower public expenditure settlement. In round numbers normally the Science Board gets about £44 million to spend—I beg your pardon, that is not correct. We would expect this year to have about £44 million for research grants. In fact, the real number we are working with right at the moment is £24 million. When you strip that down and look at the chemistry component, last year the chemistry component was £10 million, this year the best it can hope for in a situation pre today's war was £5 million.<sup>1</sup> If you take an Aberdonian Scotsman's view, like mine, with a rather genetic interest in money matters, I would say we might get away with about £2.5 million. That is to provide support for chemistry against a £10 million scenario for research grants last year for the whole of this year. I make it even blacker. We do not even have that money now so there is no budget for this year and it is against that scenario that we are trying to engage in international collaboration.

*Lord Porter of Luddenham*

884. Could we ask for clarification there? This is not yet international, we are talking about what one sees as relevant. What I wanted to ask you is this: the actual overall science funding is about 4 percent up in cash terms, that is to say about 6 percent down in real terms, is it not?

A. Yes. What you are saying—and I am sure you are right, but nevertheless the figures are often more depressing than one expected—is that the science board is far worse even than science as a whole, and chemistry is worse than the science board? 44-24m and 10-5 is much more than a 6 per cent. drop, which is the science drop?

A. Yes. I am not going to make a special case for chemistry. The figures are sufficiently dramatic to illustrate the point.

Lord Porter of Luddenham] The science board is almost half.

*Chairman*

885. When you reply perhaps you can tell us whether any bearing on this is the fact of fixed subscriptions to international activities?

A. I am glad you raise that, my Lord, because that is, of course, one of the issues which worries us considerably. To explain: one of the major international subscriptions we have is to CERN, which does world class science. In all my comments please do not assume I am denigrating the science this time, that is not what I am saying. What is of worry is the fact that we have a fixed subscription to that and over the last ten years, to CERN in particular, we pay as a nation a subscription which has been roughly level in Swiss francs, that is for the last ten years. However, because we do not actually have Swiss francs we pay in pounds. I am sure you are well aware of inflation over the last ten years, and this year the current subscription to CERN is approximately £50m, give or take a million or two. We are approximately £10-12m overspent this year, purely and simply because of currency fluctuations. This is something over which we have absolutely no control. That is a fact. Taken within the way in which we fund science in this country, the money we get in the science vote is essentially cash limited and that feeds all the way down to SERC. The SERC pays the subscription to CERN and it pays whatever is required in pounds. As I have told you, we are £10-12m overspent, but the practical effects of this international collaboration—which is valuable, I am not denying that—are that every time there is a lurch in the currency fluctuation, which is usually detrimental. It is the “small” sciences, the ones which use small amounts of money, short-term contracts, personnel-based only, which are the ones which essentially have to take up the slack. They are the things you can stop instantly. You cannot close down a national facility like Daresbury just like that. Regrettable, and something which I feel grievously upset about, is the fact that you turn off chemistry, biology, mathematics and small physics. This is a problem which I have to say is not new. I think I am correct in saying that three maybe four years ago to a committee of your Lordships, my predecessor's predecessor, as Chairman of the Chemistry Committee, made a comment very similar on these lines: it goes on and on and on and, please, can we do something about it.

<sup>1</sup> *Note by the witness:* The Science Board normally received from SERC Council about £130 million in total. Of this, 40 per cent is committed to research grants—for the fundamental, curiosity-led, explorative studies underpinning the UK's competitive edge in science. 25 per cent is committed to studentships, 32 per cent to instrumental facilities, including international subscriptions, and less than 1.5 per cent to office administration. Commitment to research grants in 1989-90 was £44 million and in 1990-91 it is probably less than £24 million. Chemistry normally receives about 1/4 of the Science Board commitment, so this year we expect to have to work with £2.5 million or less as against £10 million last year.

886. I have to say our problem is international science programmes in this Committee. Are you telling us, which I hope I have understood correctly, that the small sciences—in terms of each unit being a small spender and not committed for years ahead, which distinguishes it from large international programmes—do in fact impose a double penalty: one is you are getting less of the fraction for your own domestic expenditure and, by the same token,



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[Continued]

[Chairman *Contd*]

you are a less well-founded laboratory and less well able to enter into collaborations internationally. Is that correct?

A. Precisely.

*Lord Nelson of Stafford*

887. I wonder whether we can have a response from the university to Lord Adrian's point which he made earlier on, the degree to which the non-reimbursement of costs of submissions to the European Commission is a deterrent to universities putting forward proposals?

A. It is a problem. Any time you want something you have to spend a little to get it. I think I would be less than honest if I said I have not yet been deterred by taking the long trek to Brussels. I can usually recoup that if I am successful. The problem comes when your income, as a result, is far in debit in relation to your outgoings. I do not see an easy solution to that. In a sense we are trained to go looking for things, and that has been developed over the last ten years. We are now very much more conscious of the need to go scouring around the market looking for people to sponsor what we want to do. I believe, in terms of national science, government has a responsibility, but I am not here to air that particular point. I do not feel especially deterred, given the way things are, in making applications to the Commission in Brussels for funds because of the need to actually go there. Some universities indeed maintain agents in Brussels who will essentially act as go-betweens, find out what is available and make sure the university or consultant knows about these things. In many universities there are offices whose sole duty is to scour the European journals who learn to translate Euro-speak into something I can understand. That is valuable, but of course it is a net cost. The universities have become more than just occasionally conscious of these matters. If you employ somebody to do that you must be sure of at least covering the salary and office costs. I cannot really comment on that because I am not a real specialist but I know there are problems.

888. You would see the corollary that to participate actively in an international programme is an advantage to the university in attracting good people, and so on?

A. Yes, there are two levels there: one is the need in some sciences to use large facilities, which no nation really can afford. I am thinking, for example, of the neutron facilities as established in Grenoble or ISIS which is a similar but different type of thing. That kind of international collaboration of course is vital because it provides a corporate facility which participating countries can send their scientists to use. The other side of that coin is the fixed facility. When you run into hard times you are faced with the problem, well, we cannot close it down right now, and if we could close it down who pays the redundancy money, etc? For many scientists involved in certain types of materials that is a vital

facility. The other, and equally important international collaboration, is the thing we engage in on a personal level. For example, in my own laboratory I have very close collaborations with Poland, Italy, Germany and Spain, and this brings foreigners into my laboratory which is a very educative thing for everybody.

889. Your people get access to their labs?

A. Yes, they do indeed. I have to say that the traffic in some cases tends to be outwards with post-doctorals, people who have their degrees in this country; they would rather go out because they think there will be better facilities to do certain things. That is against the background that they may not be specifically good at languages but they go nonetheless. To have this international collaboration is vitally important: it is stimulating, you create very good relationships across national boundaries. I have had people from Iraq in my laboratory and I am wondering about their situation now. I value that and I encourage it, but there is a side that you may not be so aware of: the British Council facilitates these and does a wonderful job, particularly recently. They have had a little more money and that money has been spent exceptionally well. For example, there is a wonderful programme between Spain and Britain, called Acciones Integradas, which facilitates the exchange of Spaniards and British scientists exchanging. There is a similar programme in France called Alliance, and there is another one in Germany. These programmes allow foreign nationals to come here, and for us to go there. What they do not provide, and it is quite a problem, are the resources whereby you can actually do the research. If you need, for example, 25 gallons of acetone you have to find it out in your own resources of your own laboratory; the British Council cannot supply that.

In Spain it seems less of a problem. In this country it is becoming difficult. It is not particular to the British Council with Europe, it happens with all international co-operations, including the Commonwealth Commission which sends students here. We are very happy to have them, they do provide bench fees, but those are modest because they do not have the resources, and because of the particular financial situation British universities are in we have to look for some kind of support in order to allow these people to do the research they believe they have come to do.

*Lord Adrian*

890. Could I ask about the evaluation of research? In particular how far are the Research Councils consulted or asked for advice and judgements when there is a proposal to take part in an international scientific programme? In particular do the Research Councils give what you might call financial thought to the consequences of their recommendations with respect both to good times and hard times?



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[Continued]

[Lord Adrian Contd]

A. Well, again there are a lot of answers to that. It is difficult for me to give a fully comprehensive answer because I do not actually know how some of these things operate. I can only tell you what I experienced during the time I have been with the Chemistry Committee. There appear to be very little consultation, for example, with the European Community. There are interactions but these are stimulated in a different way. So I cannot tell you how a programme is mounted. I am not suggesting there is anything wrong, I just do not know. Nobody has told me—I have asked questions and I do not get answers. There is, I think, a very effective relationship between the international section of the SERC and the Cabinet Office. The Cabinet Office interacts with Brussels, as I understand it. I have not had any significant interaction during my time as Chairman, admittedly brief. I think it is a pity but it is something we can resolve. In terms of formulating programmes things obviously happen when there is a perceived need for them to happen. So if you need to establish some kind of new facility which clearly has to be international because of the cost of it, then I would believe that scientists will express that need and will find the way of approaching whoever can enable it through the various organisations.

891. Is there in your experience evidence that the Research Councils' secretariat, or whatever it is, gives advice to the members of the Research Councils to say that "You realise that if this is taken on this may be a major financial burden on the Council in five years time"?

A. Yes, I think it is fair to say they do. They are well aware of this but, of course, we work very, very closely together. I think the difference between the SERC secretariat and people like me is that they have one job, I have several, but we meet quite often and exchange views about these things. One point I would like to make, however, is this: I was most interested in Professor Fasella's comments about evaluation. I know, again speaking with the knowledge that my fellow chairmen have the same view, that we are not consulted very much about evaluation of scientists; it is done at a European level. I am not quite clear exactly where we stand in relation to the mechanisms for exchange of information but, to my knowledge, at least as far as chemistry is concerned, we had our first contact ever with a body within the EC in relation to evaluating chemistry which arose from a request from a former director of ICI who represents us on CODEST for some advice as to how chemistry could be evaluated because they were running into problems. The size of the subject is so vast today that to know which part of chemistry is to be considered: is a major problem. This gentleman invited the Royal Society of Chemistry to suggest a few names—mine came out of the hat, I am known there, they know my connection with SERC, and we have made a proposal. This is the first time we have actually had contact there. Out of that came most interestingly a list of referees which CODEST uses. It was a list of all the Europeans—I am not intending to embarrass

Professor Fasella, nevertheless I must say this—and it was very revealing as to who was there and who was not.

Chairman

892. May I interrupt? Did the list that came out give you any confidence or otherwise?

A. Well, I must be diplomatic, Chairman.

893. I do not see why.

A. There were people there whose names I did not recognise, but some of them I would not recognise because they were in fields of chemistry with which I have no acquaintance, but there were names there and names of some of your Lordships' colleagues which were not there. I was surprised at that because they are active scientists. The comment we wished to make to the person we were meeting with was that the Chairman of the Chemistry Committee and his sub-committee chairmen are probably, at least as far as the United Kingdom is concerned—I think it is also true of the CNRS and CNR and the German funding bodies—people in touch with what is going on in science in their countries and very well informed, they have excellent back-up facilities. It is a great pity that these are not used more extensively. While I am certainly not looking for more work, I would certainly, with the benefit of my audience behind me, wish to emphasise that nevertheless we have knowledge which is available.

Lord Porter of Luddenham

894. Professor McCleverty, I think you have raised a very important point of principle here. The list that you talk about was different from the one you would have provided?

A. Yes.

895. Is that not a good thing?

A. In some ways.

896. What I am getting at is, obviously the European Community must seek advice from the scientists in the country and it could go to the Royal Society of Chemists or the Royal Society or ICI or whatever. But is it not wrong that it should go to the only other funding body that the poor man has to go to? What I am saying is that some diversity is absolutely vital because I think even you would agree that you do make mistakes sometimes?

A. Oh, sure. Yes.

897. We all do.

A. Yes.

898. There are not many places that scientists in physics or chemistry can go to. As you know, they can go to SERC and they can go to the EC and that is about it. Do you think in view of what I have just said that SERC should really have a say in who is



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[Continued]

[Lord Porter of Luddenham *Contd*]

there. It provides its own list which is already used and it has probably turned the man's application down. Should it provide its own list to the EC or have an alternative route?

A. There are several points there. Firstly, a lot of things we get we do not turn down, we just cannot fund them. But we have a few and it is good science. What I am saying is there is a corporate body of opinion, a body of expertise rather, here that the Community can use. We are not seeking to impose, we would not want to impose SERC as the only body it could negotiate with, but there is a variety of expertises which the Community does not appear, on the basis of the list, to have knowledge of and to be accessing. We have a complete list of names we use for our referees, we would be happy to make that available to the Community to use. These are people whom we use ourselves, we know they are in good standing, professional scientists who do good service. The Community is entirely at liberty to take any other names it wishes. We were a little surprised not to have been approached at least at my level.

989. Would you not agree that, in these very difficult times when one very small grey mark is enough to provide an excuse for no funding, it is a good thing that one referee cannot follow a person's applications around the world?

A. The point is well taken. I think that is why you do need something else. We discussed at this meeting with the CODEST representative whether it would be helpful to have a panel of people to look at the applications and the referees' comments in order to establish that just the point you raised is not occurring, so that fairness is not only done but seen to be done.

*Chairman*

900. Professor McCleverty, we have covered a lot of ground. There is one point we have not touched on which is the last of the questions you have on the list we meant to touch on. It is perhaps a suitable one on which to end and one which concerns us in this Committee quite a lot. That is how best to make decisions about what international projects we might join or not join, how that decision is made and, in particular, in view of what you have said about the fact that if there is a fixed tranche of money available, international projects by being established also establish for themselves, as it were, a right of freehold and consequent on that, whether any pressure on the total is magnified on the residual which you call small science?

Have you got any views about how we do these things in this country. Do you think that our arrangements for deciding to participate in this or that international project are satisfactory, or have you not been involved?

A. I have not been involved, my Lord Chairman. I think that the only comment I could make is that clearly these decisions are taken at many different levels, some political, and therefore we have no particular way of influencing that, other than the

fact, I would hope, when we are about to engage in an international project that those people who are best qualified to comment on the science are approached and asked for a view. If science is good then it should be clearly stated as such. Whether the money is available is a different issue clearly, and whether political aspects are right or not is another issue, as long as scientists are approached, and I have no reason to believe that in the past they have not been. The fullest consultation, commensurate with efficiency, is desirable. I have not experienced that at a major level. The only thing I would say is that in relation specifically to chemistry an initiative has come up about international collaboration, particularly through the EEC. This arose from a discussion among a group of chairmen of chemistry committees from the European Community meeting together by mutual agreement, and deciding to form a lobby group in Brussels. As a result of that they have persuaded the Commission to establish a COST ad hoc committee on chemistry to attempt to develop a proper named, established, fundamental chemistry programme within the science framework.

901. Does this arise in part because your chemistry colleagues in other countries feel that they are under the same kinds of pressures that you are here being a small science?

A. It is not specifically small science but a perception that chemistry has not been recognised as the important science that it is and with all the contributions it has to offer. That is not to say it does not appear in the Community's programme, but you have to look very hard. There are so many things that that science can do which are beneficial to European bases that we think there should be dedicated programmes. That committee has met several times and we are attempting to establish this as a way of influencing the Community's policy. With this country's support it is a little difficult to see how this will work, but I believe having developed what we have, and this is done in collaboration with SERC, certain aspects of this will be looked at in the Cabinet Office and advice given to us and to Brussels as to what we can and cannot do. We have not got to that stage yet. There is a little bit of a mystery in how we progress matters from having decided the science is good to actually getting the money to support it. I do not really understand the details of additionality or attribution, I have yet to meet many people who do. If we do actually establish a dedicated programme, and in particular an aspect of pure basic fundamental science, then the attribution factor may very well take the money we think we are going to get out of Europe out of our own research council's pockets so we lose twice over. My information is that this year at least, or next year, notwithstanding the difficulties we are in, the attribution factor will not work against anything within the Science Board, largely, as I understand it, because most of the programmes in the Community are of an applied nature. We would like to see the



17 January 1991]

PROFESSOR J A MCCLEVERTY

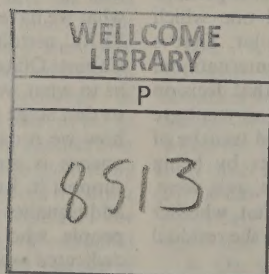
[Continued

[Chairman *Contd*]

Community support more fundamental science. You cannot develop applied science without a solid basic fundamental understanding.

I think on that note it is time to conclude and to thank you, Professor McCleverty, for coming to meet us today. We are most grateful to you.

A. Thank you for asking me.



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ISBN 0 10 481191 9